

USSR

GORBUNOV, A. V., Tr. In-ta elektron. upravl. mashin, 1971, vyp. 18, pp 26-29

nonhomogeneous fragments of logic expressions, whose values are logic data blocks (a vector function). Nonhomogeneity here is understood to mean that different elements of the data block are computed by different logic formulas. The tabular specification of nonhomogeneous fragments of logic expressions is effected by reference to tables included in the logic expressions at the end of the formula where reference to such tables occurs. In addition to the apparatus for description of logic circuits, the language incorporates means which enable its use as a programming language.

2/2

- 36 -

USSR

GORBUNOV, A. V.

"A Programming System Based on a Language for Description of Homogeneous Logic Systems"

Tr. In-ta Elektron. Upravl. Mashin. [Works of the Institute of Electronic Control Machines], 1971, No 18, pp 26-29 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V802 by V. Mikheyev).

Translation: It is suggested that a language for the description of the logic systems of digital devices called "Skhemokod" be used as an analytic tool for circuit programming. On the basis of the descriptive properties of Skhemokod consists of logic formulas in scalar and dimensional form. It is noted that the calculation of a set of values (status of a register, group of flip-flops, etc.) is described by one logic formula in dimensional form. The rules for matching of dimensionalities of files variable in the right and left portions of the logic formula follow from the principles of construction of digital circuits. They allow one dimensional logic expression to describe homogeneous branching of chains of information transmission. Skhemokod allows representation of the tabular value of heterogeneous fragments of logic expressions, the values of which are files of logic values (vector function). Heterogeneity in this

1/2

GORBUNOV, A. V., Tr. In-ta Elektron. Upravl. Mashin., 1971, No 18, pp 26-29.

case refers to the fact that various elements of the file of values are calculated according to various logical formulas. Tabular assignment of heterogeneous fragments of logic expressions is performed using references to tables in logic expressions, placed at the end of the formula in which they are referenced. In addition to the means for description of logic circuits, the language includes means allowing it to be used as a programming language.

2/2

-- 69 --

1/2 026 UNCLASSIFIED . PROCESSING DATE--13NOV70
TITLE--WETTABILITY AND PROPERTIES OF MONO AND DIBORIDES OF GROUP IV AND VI
METALS -U-

AUTHOR--(03)-TUMANOV, V.I., ~~GORBUNOV~~, A.YE., KONDRATENKO, T.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 540

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--BORIDE, TITANIUM COMPOUND, CHROMIUM COMPOUND, TUNGSTEN
COMPOUND, ZIRCONIUM BORIDE, COPPER ALLOY, NICKEL ALLOY, CHROMIUM ALLOY,
HOLYBDENUM ALLOY, MICROHARDNESS, WETTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1104

STEP NO--UR/0076/70/044/002/0540/0540

CIRC ACCESSION NO--AP0123096

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123096

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE WETTABILITY OF TiB, CRB, WB, ZRB SUB2, AND CRB SUB2 BY CU, NI, AND ALLOYS OF NI-CR, NI-CR-MO HAVE BEEN STUDIED. THE SP. ELEC. COND. AND MICRO HARDNESS ARE GIVEN. THE CONTACT WETTING ANGLE WAS DETD. AT 10 PRIME NEGATIVE4-10 PRIME NEGATIVES TORR BY THE DROP METHOD AT THE M.P. OF THE WETTING MATERIAL SP. ELEC. COND. WAS MEASURED BY USING THE EDDY CURRENT METHOD AND MICROHARDNESS WAS MEASURED IN KG-MM PRIME2 AT A LOAD OF 40 G. THE WETTABILITY OF ZRB SUB2 BY MANY COMPONENT NI BASED ALLOYS WAS LESS THAN THAT ON PURE NI. THE CONTACT WETTING ANGLE VARIED FROM 75-80DEGREES. IN THE CASE OF CRB, THE WETTING ANGLE WAS ZERO. WETTABILITY OF MONO AND DIBORIDES BY NI AND CU IMPROVED WITH RISING AT. NO. OF THE METAL OF BORIDE. DECREASE OF B CONTENT IN MONOBORIDES AS COMPARED TO DIBORIDES RESULTED IN THE DECREASE OF CONTACT WETTING ANGLE BY NI AND CU.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ENERGY CONFINEMENT TIME OF A PLASMA AS A FUNCTION OF THE DISCHARGE
PARAMETERS IN THE TOKAMAK-3 -U-
AUTHOR-(03)-GORBUNOV, E.P., MIRNOV, S.V., STRELKOV, V.S.
COUNTRY OF INFO--USSR
SOURCE--NUCLEAR FUSION VOL. 10, MAR 1970, P. 43-51
DATE PUBLISHED----MAR 70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--THERMAL INSULATION, PLASMA CONFINEMENT, ION DENSITY, CURRENT
DENSITY/(U)TOKAMAK 3 THERMONUCLEAR DEVICE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1985/1836 STEP NO--AU/0000/70/010/000/0043/0051
CIRC ACCESSION NO--AP0101883
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0101883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS INVESTIGATE THE THERMAL INSULATION OF PLASMAS IN TOKAMAK-3, TAKING AS THERMAL INSULATION PARAMETER THE ENERGY CONFINEMENT TIME OF THE PLASMA AND RELATING IT TO THE DISCHARGE PARAMETERS: THE STABILIZING MAGNETIC FIELD, THE CHARGED PARTICLE DENSITY, AND THE DISCHARGE CURRENT. IT IS FOUND THAT FOR CHARGED PARTICLE DENSITIES GREATER THAN 2 TIMES 10^{10} TO THE 13TH POWER PER CU CM, THE ENERGY CONFINEMENT TIME IS VIRTUALLY INDEPENDENT OF THE STABILIZING FIELD AND INCREASES SOMEWHAT WITH CHARGED PARTICLE DENSITY AND IN PROPORTION TO THE DISCHARGE CURRENT. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT ATOMNOI ENERGII, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 536.46.621.454

GORBUNOV, G., PESHKOV, A. V., KHRISTOFOROV, I. L., ENMIL', M. V.

"Air Flow Behind the Vane Swirler in the Fire Tube of the Combustion Chamber of a Gas Turbine Engine"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy -- Aviatsionnaya Tekhnika, No 1, 1971, pp 63-68

Abstract: A study is made of some of the characteristic features of the whirling flow in the forward section of the combustion chamber pertaining to the shape of the jet leaving the swirler, the static pressure distribution and the turbulence intensity. Comparison of the calculated and the experimental data shows that in the presence of proper agreement of the parameters of the vane swirler and the transition cone, a smooth continuous whirling flow is observed along the generatrix of the transition cone. The profile of the distribution of the turbulence intensity in the forward section of the chamber essentially depends on the aerodynamics of the flow which are determined by the shape of the frontal structure.

1/1

AP9047310

CHEMICAL ABST. 11-69

UR 0237

86514w Preparing spectra by using a Fourier spectrometer IT-69. Gorbunov, G. G.; Ivanova, A. A.; Kisilev, B. A.; Tupitsyn, I. V. (USSR). *Opt.-Mekh. Prom.* 1969, 36(6), 47-9 (Russ). The procedure is given for obtaining interferograms by means of the Fourier-spectrometer IT-69 and their transformation into spectra on the computer Ural-2. The ways and results are given for the control of the smooth running, amplification linearity, and phase alterations, as well as the prepn. of the numerical material and computations.

P. Adamek

DLH

26
5
1
32

1/1

1947

0288

21

USSR

UDC: 621.438.056.:533.6

GORBUNOV, G. M. and EMIL', M. V.

"Twisted Flows Behind Annular Blade Vortex Generators in the Combustion Chamber of a Gas Turbine Engine"

Tr. Mosk. aviats. in-ta (Works of the Moscow Aviation Institute), 1972, vyp.248, pp 84-92 (from RZh-49. Turbostroyeniye, No 4, Apr 73, Abstract No 4.49.122)

Translation: The authors study the effect of twisting and structural parameters of the front design of the flame tube of the combustion chamber of a gas turbine engine on the radial dimensions of the back flow zone under conditions of isothermal flow. Original article: 4 illus. and 5 bibl.

1/1

USSR

UDC 621.43.011.533;621.5:533

GORBUNOV, G. M. and EMIL', M. V.

"Twisted Jets Behind Annular Bladed Swirlers in a Gas-Turbine Engine Combustion Chamber"

Moscow, Tr. Mosk. aviats. in-ta (Transactions of the Moscow Aviation Institute)
Vyp 248, 1972, pp 84-92 (from Referativnyy Zhurnal -- Mekhanika, No 4, 1973,
Abstract No 4B393 by Yu. F. Dityakin)

Translation: The method and results of an experimental investigation of the influence of air twist and constructional parameters of the frontal arrangement of a burner-can combustion chamber of a gas turbine engine on the radial dimensions of the zone of reverse flows in combustion chambers are stated. A short review of the work connected with this investigation of zones of reverse flow in combustion chambers is presented. The investigations were conducted on a model chamber with a changeable front arrangement, in which the angles of the transitional cone and the adjustment angles of the swirler blades were varied. The velocity vector was measured with the aid of a semi-spherical, five-hole attachment and a alcohol micromanometer. The velocity fields and the boundaries of the reverse flow zone were obtained. It is demonstrated that the radius and the angle of the blade swirler, as well as the subangle of the $1/2$

USSR

GORBUNOV, G. M. and EMMIL', M. V., Tr. Mosk. aivats. in-ta, Vyp 248, 1972, pp 84-92

transitional cone of the chamber, influence the behavior of the flow in the chamber. In the absence of a transitional cone and with decreasing twist angle (65° instead of 75°) the radius of the zone of reverse flow sharply decreases. The use of a frontal arrangement, projected by the calculation of a hyperboloid rotation, in the chamber leads to the reduction of the maximal value of the zone of reverse flow. The results of the experiments were verified on a full-scale combustion chamber of identical dimensions with the model. (5 bibliographic entries)

2/2

- 124 -

USSR

GORBUNOV, G. M., TITOV, Yu. I.

"Depth of Penetration of Nonisothermal, Transverse, Individual Stream into a Channel with Constriction"

Tr. Mosk. Aviats. In-ta [Works of Moscow Institute of Aviation], 1972, No 248, pp 101-111 (Translated from Referativnyy Zhurnal Mekhanika, No 5, 1973, Abstract No 5B350, by I. M. Baskin).

Translation: Results are presented from experimental studies of an individual stream in a rectangular channel with a constriction, a model of a section of a circular combustion chamber of a gas turbine engine with a large radius of curvature. The studies were performed in order to determine the regularities of development of transverse streams in a moving stream with high temperature in channels with various constrictions. The experimental installation and plan of measurements are described. The model chamber has a square cross section with sides of 200 mm. The air was divided into the primary air supply for creation of the stream in the model chamber and the secondary air supply for creation of streams flowing from a side chamber, moving perpendicularly to the main stream. It is concluded that as the side stream flows into a

1/2

USSR

GORKHUNOV, G. M., TITOV, Yu. I., Tr. Mosk. Aviats. In-ta, 1972, No 248, pp 101-111.

limited channel of variable cross section, the relative depth of penetration decreases with increasing constriction of the output cross section, if the distance from the mouth of the stream to the beginning of the constriction is less than the diameter of the chamber. It is demonstrated that a change in initial nonisothermal conditions of the mixing streams has no significant influence at the exit from the combustion chamber on relative depth of penetration and its decrease with increasing constriction. 7 biblio. refs.

2/2

- 10 -

USSR

UDC 629.7.036.3:536.46

GOREUNOV, G. M. and KHRISTOFOROV, I. L.

"Mechanism of the Combustion Process Behind the Front Devices and in the Secondary-Air Jet Inflow Zone in the Chambers of a Gas Turbine Engine"

Moscow, Gorennye i Vzryv--Sbornik (Combustion and Explosion--Collection of Works), Nauka, 1972, pp 421-425 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 2, 1973, Abstract No 2.34.21. Resume)

Translation: The work is devoted to an experimental investigation of the process of combustion in the initial part of the fire tubes behind the front device and at the secondary-air jets. There are presented the basic results obtained behind typical front devices, taken from series chambers and distinguished by the method of introduction of the primary air into the fire tube. Two burning schemes are established: 1) a heterogeneous fuel-air mixture is delivered to the combustion zone, and the combustion products are led off from the combustion zone; 2) fuel and air diffuse from two different directions to the combustion zone, and the combustion products are led off in both directions. During the investigation of combustion at the secondary-air jets it was established that if the burning process behind the front device of the heat tube takes place according to scheme 1 or 2, the same corresponding scheme is realized during burning of the fuel around the secondary-air jet of the first zone of openings. 5 figures. 6 references.

1/1

US3R

UDC 629.7.036.3

GORBUNOV, G. M.

"Selecting Parameters and Calculating the Basic Combustion Chambers of Gas Turbine Engines"

Vybor parametrov i raschet osnovnykh kamer sgoraniya GTD (cf. English above), Textbook, Moscow, Moscow Aviation Institute, 1972, 230 pp, ill., 58 k. (from RZh-Aviatsionnyye i raketnyy dvigateli, ot del'nyy vypusk, No 11, Nov 72, Abstract No 11.34.23 K)

Translation: This book contains a brief discussion of only the general information, theoretical and experimental data without which it is impossible to perform the design and verifying hydraulic calculations for the combustion chambers of gas turbine engines. Calculation procedures and examples are presented as applied to hypothetical combustion chambers of the block and ring type. A procedure is also given for verification of the chambers. Data published in foreign and Soviet papers and also the author's developments are used in the procedure for calculating the various elements of the combustion chambers. The procedure does not exclude the possibility of using new results of research work as they appear in print, for example, for calculating the diffuser, the temperature field at the exit from the flame tube, calculation of the flame tube wall temperature, and so on. The book is a text for graduate planning and design, and it is intended for students specializing in air-breathing

1/2

USSR

GORBUNOV, G. M., Vybor parametrov i raschet osnovnykh kamer sgoraniya GTD, Text-book, Moscow, Moscow Aviation Institute, 1972, 230 pp, ill., 58 k.

jet engines, but it can also be used by engineers designing the combustion chambers of gas turbine engines.

2/2

- 138 -

USSR

UDC 646.46:629.7.036

GORBUNOV, G. M., PESHKOV, A. V., KHRISTOFOROV, I. L., and
EMIL', H. V.

"Investigation of the Turbulence Intensity in the Region of
Inflow of Secondary Air Jets Into a Gas Turbine Combustion
Chamber"

Kazan', IVUZ Aviatsionnaya Tekhnika, No 4, 1971, pp 38-43

Abstract : The intensity of the turbulent mixing process by in-
flow of a system of round jets into the drifting flow is deter-
mined not only by parameters of the jet and the depth of its pe-
netration but to a considerable extent also by the turbulence in-
duced by the jet wake. Experimental results of measuring turbulen-
ce intensity in the inflow region of a single jet into the drif-
ting flow and behind jets of secondary air in the combustion cham-
ber of a gas turbine engine are presented. The measurements were
made with the electro-hot-wire anemometer ETA-5A, of P. V. Cheby-
shev's design. The experiments demonstrated that by the use of
cross jets with optimum relative pitch of holes (by specific
depth of their penetration into the drifting flow), in combusti-
on chambers of gas turbine engines a high degree of turbulence
($\epsilon_{\max} = 25-30\%$) can be obtained, thus ensuring an active mi-
xing of fuel with air and a forced thorough combustion of the
mixture. Six illustr., seven biblio. refs.

1/1

- 118 -

1/2 GSC UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--FUEL BURNOUT MECHANISM AND HEAT YIELD IN THE SECONDARY AIR FLOW
INJECTION ZONE OF TURBINE ENGINE COMBUSTION CHAMBERS WITH VARIOUS
AUTHOR--(CZ)-GERBUNOV, G.M., KHRISTOFUKOV, I.L.

COUNTRY OF INFO--USSR

SOURCE--AVIATSIKOVAYA TEKHNIKA, VOL. 13, NO. 1, 1970, P. 88-96

DATE PUBLISHED-----70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--COMBUSTION PROCESS, COMBUSTION PRODUCT, HEAT OF COMBUSTION,
TURBINE, COMBUSTION CHAMBER, FLOW VELOCITY, FUEL INJECTOR, FUEL
EFFICIENCY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PAGEXY FICHE NO----FD70/605060/C01 STEP NO--UR/0147/70/013/001/0038/0096

CIRC ACCESSION NO--AP0144341

UNCLASSIFIED

2/2 C66

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0144341

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL INVESTIGATION OF THE COMBUSTION PROCESS IN SECONDARY AIR INJECTION REGIONS AS A FUNCTION OF FUEL COMBUSTION EFFICIENCY ALONG THE LENGTH OF THE EXHAUST PIPES. THE STUDY IS CONDUCTED FOR DIFFERENT METHODS OF SECONDARY AIR INJECTION IN A COMBUSTION CHAMBER WHOSE HEAD SECTION HAS A ZONE OF HETEROGENEOUS MIXTURE FLOW FOLLOWED BY A COMBUSTION ZONE AND FINALLY BY COMBUSTION PRODUCTS. A DIMENSIONLESS EXPRESSION IS GIVEN FOR THE RATIO OF THE MAXIMUM ATTAINED COMBUSTION EFFICIENCY (WITH A GIVEN METHOD OF SECONDARY AIR INJECTION) TO THE LENGTH (EXPRESSED IN CALIBERS OF THE EXHAUST PIPE) AT WHICH THIS EFFICIENCY WAS ACHIEVED.

UNCLASSIFIED

USSR

GORBUNOV, G. V.; MOSKALEV, E. S.

"Use of Spectral Methods in the Minimization of Combination Circuits"

Riga, Avtomatika i Vychislitel'naya Tekhnika; May-June, 1971; pp 1-8

Abstract: A means of minimizing the number of combination circuits realizable by a canonical method is suggested. The essence of the method lies in finding the optimum linear transformation of arguments by an analysis of functions derived from a given function and having a mutual correlation. The method can be applied successfully to the minimization of the number of circuits realizing systems of logic functions. Three specific examples are given to illustrate the method.

The article includes 25 equations, 3 figures, and 2 tables. There are three bibliographic references.

1/1

- 5 -

USSR

UDC: 620.178.15.05

KIDIN, I. N., ANDRYUSHENKIN, V. I., and GORBUNOV, I. P.

"Machine for Determining Residual Stresses on the Basis of
PMT-3 Equipment"

Moscow, Zavodskaya laboratoriya, No. 1, 1971, pp 107-109

Abstract: The description is given of a machine for determining the residual stresses in the surface layers of plastic specimens. The machine has as its basis the PMT-3 microhardness meter, an optical device used to measure the bend in the specimen arising from the removal of a layer in the course of the test, by a special device which continuously and electrolytically scrapes the surface layer of the specimen. A diagram of the device is given together with a detailed explanation of its operation. The machine was tested by measuring the residual stresses in the surface layer of welded type-20 steel plates. The results of these measurements agreed with the results obtained in the literature by other methods. The authors, members of the Moscow Steel and Alloy Institute, claim for their method the advantage that it takes into account the specific nature of the residual stress distribution in the specimens after surface toughening.

1/1

- 164 -

USSR

BOBROVNIK, I. I., GORBUNOV, K. I., KLOCHAN, V. I., MONASTYREV, V. K., POPLAVSKIY, N. N.

"Geoseismic Logging Procedure"

USSR Author's Certificate No 370567 (from Otkrytiya, Izobreteniya, Promyshlennyye obraztsy. Tovarnyye znaki (Discoveries, Inventions, Industrial Models, Trademarks), No 11, 1973, page 144)

Translation: The geoseismic logging procedure by reducing multichannel reflected wave recordings to one generalized track with utilization of mutual correlation functions, track selection by the threshold values of the similarity coefficients and summation with preliminary input of kinematic and static corrections is distinguished by the fact that in order to increase the reliability of wave correlation and determine the relations of the dynamic wave characteristics with physical-lithologic section parameters, two-halfperiod detection of the digital analog of the summogram, sliding integration with the time interval which is a multiple of the oscillation halfperiod and normalization of the recordings with respect to intensity of the excitation center and the amplification coefficients of the recording channel are used successively with subsequent conversion of the energograms by the law of formation of a sequence of partial sums of the theories.

1/1

USSR

UDC: 621.438:629.113.004.15

GORBUNOV, K. V., Gor'kiy Motor Vehicle Plant

"Technical and Economic Effectiveness of the Application of Gas Turbine Engines in Trucks"

Moscow, Avtomobil'naya Promyshlennost', No 1, Jan 73, pp 6-8.

Abstract: This article is a discussion of a previous article, published in the same journal, No 4, 1971, in which, apparently, it was concluded that gas turbine engines were suitable for use in trucks of 12-20 tons load capacity, to be operated at average speeds of 30-35 km/hr. The author of this article points out that the author of the previous article compared precisely tuned experimental models of gas turbines with production models of diesel engines, and obsolete, low-speed diesels at that. Using the figures for modern, high-speed diesel engines, the author concludes that gas turbine engines are not profitable as replacements for diesel engines, except perhaps for trucks of over 20 tons load capacity, to be operated primarily at speeds of 80-100 km/hr, at which speeds the gas turbine engines can operate at more nearly their rated characteristics.

1/1

Acc. Nr: **0048184**
AP0048184

Abstracting Service:
CHEMICAL ABST.

Ref. Code:

4/70 UR 0007

82795m Correlation between thermodynamic parameters and the solubility of salts and gases in water at increased temperatures. Gorbunov, L. V. (Kirov. Politekh. Inst., Kirov, USSR). *Gekhimiya* 1970, (1), 116-20 (Russ). The linear dependence was detected within the 25-110 and 101-350° ranges between the changes in soly. in water ($L_T - L_{298}$, where T is temp. in °K) of solid phase, not forming hydrated crystals, and gases (AgNO_3 , KCl , NaCl , Na_2CO_3 , Na_2SiO_3 , NaF , CO_2 , H_2S , SO_2 , and HBr) and increments of entropy ($S_T - S_{298}$), enthalpy ($H_T - H_{298}$), and isobar potential ($Z_T - Z_{298}$). The linear dependences between $L_T - L_{298}$ and the increments of above thermodynamic values were expressed in the form of equations: $L_T - L_{298} = A_S + B_S(S_T - S_{298})$, $L_T - L_{298} = A_H + B_H(H_T - H_{298})$, and $L_T - L_{298} = A_Z + B_Z(Z_T - Z_{298})$ where A_S , B_S , A_H , B_H , A_Z , and B_Z are consts. detd. from several exptl. data on the soly. of gas or salt in water at various temps. Because the soly. in water at 25° is known for most of salts and gases, these equations can be written in the form of: (1) $L_T = L_{298} + A_S + B_S(S_T - S_{298})$; (2) $L_T = L_{298} + A_H + B_H(H_T - H_{298})$; and (3) $L_T = L_{298} + A_Z + B_Z(Z_T - Z_{298})$. Calcs. by these equations agreed well with exptl. data. Equations 1, 2, and 3 can be used for extrapolation and interpolation of exptl. data on the soly. at various temps. This decreases the time of exptl. studies. The regular character of additive changes in soly. and increments in thermodynamic values were detected also for other salts and gases in addn. of those studied in the article. BLJR

REEL/FRAME
19791896

9

18

1/3 : 025 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--ISLAND AND LINE GRANULARITY DIFFERENCES IN AK4 1 ALLOY FORGINGS -U-
AUTHOR--(03)-MURAVYEV, V.I., GORBUNOV, N.N., NOVIKOV, G.N. 6
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, KUZNECHNO-SHTAMPOVOCHNOYE PROIZVOOSTVO, NO. 2, 1970, PP
8-10
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MECHANICAL PROPERTY, ALUMINUM ALLOY, MECHANICAL STRENGTH,
CHEMICAL COMPOSITION, CRYSTALLIZATION, METAL FORGING, METAL
CRACKING/(U)AK6 ALLOY, (U)AK4.1 ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1985/0260

STEP NO--UR/0182/70/000/002/0008/0010

CIRC ACCESSION NO--AP0100772

UNCLASSIFIED

2/3 025
CIRC ACCESSION NO--AP0100772

UNCLASSIFIED

PROCESSING DATE--19SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GRANULARITY PHENOMENA OF THE TITLE, ILLUSTRATED IN A PHOTOGRAPH, ARE INVESTIGATED IN THIS PAPER. THESE DIFFERENCES ARE IMPORTANT BECAUSE THEY REDUCE THE MECHANICAL STRENGTH AND REFRACTORINESS OF THE ALLOY MENTIONED IN THE TITLE, AND THE BOUNDARIES BETWEEN SMALL AND LARGE GRAINED ZONES CAUSE DEGENERATION OF THE METAL BY CRACKING. IT IS STATED THAT LARGE GRAINS IN ALUMINUM ALLOYS MAY ARISE IN RECRYSTALLIZATION AS A RESULT OF NONHOMOGENEITIES IN THE CHEMICAL COMPOSITION, AS IN THE AK4 ALLOY AS WELL AS THE CRITICAL DEFORMATION DEGREE, AS IN THE AK4-1 ALLOY. THE EXPERIMENTS DESCRIBED WERE DONE WITH RODS 75 AND 80 MM IN DIAMETER MADE OF AK4-1 OF VARIOUS MELTS. IN THEIR ORIGINAL STATES, THE GRAINS IN THE RODS WERE SMALL AND UNIFORM; AFTER TEMPERING AND AGING OF THE RODS, THE GRAINS IN THE 80 MM SPECIMEN REMAINED SMALL AND UNIFORM WHILE THOSE OF THE 75 MM ROD SHOWED DIFFERENCES. SPECIMENS 20 MM THICK WERE USED TO INVESTIGATE THE EFFECT OF THE DEGREE OF DEFORMATION AND TEMPERATURE UNDER STAMPING. AFTER HEATING TO 350, 450, AND 530 DEGREES C AND SUBSEQUENT COOLING IN WATER AND AIR, THE AVERAGE DEGREE OF DEFORMATION WAS FROM 4 TO 37 PERCENT AND THE TRUE DEGREE OF DEFORMATION FROM 0 TO 85 PERCENT, THE LATTER FIGURE BEING DETERMINED BY THE METHOD OF I. M. PAVLOV (ARTICLE IN METALLURG, 1936, NO. 7). ALL SPECIMENS REGARDLESS OF THE TEMPERATURE TO WHICH THEY WERE HEATED SHOWED GRANULAR DIFFERENCES DEPENDING ON THE DEGREE OF DEFORMATION. A TABLE OF THE MECHANICAL QUALITIES OF THE ALLOY FOR VARIOUS TYPES OF MACROSTRUCTURE IS GIVEN.

UNCLASSIFIED

3/3 025

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100772

ABSTRACT/EXTRACT--THE AUTHORS DRAW TWO CONCLUSIONS: THAT THE APPEARANCE OF GRANULAR DIFFERENCES IN AK4-1 FORGINGS IS CONNECTED WITH THE RECRYSTALLIZATION OF PORTIONS WITH A CRITICAL DEGREE OF DEFORMATION, AND THAT STAMPING FOR ONE TRANSITION IS THE MOST EFFECTIVE METHOD FOR ELIMINATING GRANULAR DIFFERENCES AND IMPROVING THE MECHANICAL QUALITY, RELIABILITY, AND LIFE OF MACHINE PARTS.

UNCLASSIFIED

USSR

UDC: 620.198

SHAPOVALOV, V. P., GORBUNOV, N. S., BRYNZA, A. P., FEDASH, V. P.,
LEGASHOVA, T. P.

"Corrosion Resistance and Electrochemical Behavior of Titanium Coatings"

Moscow, Zashchita Metallov, Vol 9, No 3, Jul-Aug 73, pp 465-467.

Abstract: The corrosion and electrochemical behavior of diffusion titanium coatings was studied in acid, alkaline and organic media. The corrosion tests and studies of electrochemical behavior of titanium coatings produced from the vapor phase in a vacuum showed that diffusion titanium coatings can protect iron-carbon alloys from the effects of certain corrosive media. The resistance of type 3 steel, titanium coated, with exposures of up to 450 hours, is significantly higher than that of carbon steel and stainless steels, and in many cases is equal to the resistance of titanium alloys.

1/1

Mechanical and Optical

USSR

UDC 620.193.5:/621.793.6:669.14/

OSINTSEV, V. D., GOREUNOV, N. S., LAVRENKO, N. A., LITVINOVA, N. YE., and
SIDEL'NIKOVA, E. A., VNIIT (All-Union Sci Res, Design and Technological
Institute of the Pipe Industry, Dnepropetrovsk)

"Effect of Diffusion Chromium Plating and Heat Treatment on the Corrosion
Resistance of Chromium Plated Steel in Hot Sulfurous Gases"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 2, 1973, pp 17-19

Abstract: The effect of chromium plating temperature, carbon content in the steel, cooling rate and heat treatment on the corrosion resistance of a contact-diffusion chromium coating in the gases of an industrial tubular heat exchanger used in the production of elementary sulfur was investigated. Steels 10, 20, 45, armco iron and steel 1 ϕ with titanium (0.14% C and 0.74% Ti) were used in this study. Chromium plating was done at 1100° and 1150° C for six hours in a vacuum of 0.01-0.001 mm Hg. Samples were placed inside a tube in a flow of gas containing almost 4% by volume) sulfur (sulfur dioxide, hydrogen sulfide, sulfur vapors and sulfur-organic compounds). Gas temperature was kept at 270-290°C and test time was 12,240 hours. Samples of steels K25^U, K13K10T and St. 3 (not plated) were also tested for comparison. Steel 10 + Ti after plating at 1150°C and steel 10, annealed or normalized after plating, had the least

1/2

USSR

OSINISEV, V. D., et al., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 1973, pp 17-19

corrosion ($0.002-0.003 \text{ g/m}^3\text{-hr}$) when they were rapidly cooled ($600-1000^\circ \text{ C/hr}$) owing to the smaller amount of carbides able to enter the alpha-solid solution. 1 figure, 5 bibliographic references.

2/2

- 56 -

USSR

UDC: 550.834

REMIZOV, V. Ya., GORBUNOV, S. G., SLUTSKOVSKIY, A. I., All-Union Scientific Research Institute of Geophysical Prospecting Methods

"A Device for Recording Seismic Profiles"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 23, Aug 72, Author's Certificate No 346695, Division G, filed 20 Aug 71, published 28 Jul 72, p 188

Translation: This Author's Certificate introduces a device for recording seismic profiles in the form of triangles and trapezoids. The device contains a seismic signal source, an optimizer, a kipp oscillator, a source of high-frequency oscillations, a limiter amplifier, and a cathode ray tube. As a distinguishing feature of the patent, in order to improve the quality of recordings, the seismic signal source is connected to a memory cell which fixes the extremum value of a signal, the output of the integrator [sic] is connected to one of the inputs of a compensation module and to one of the inputs of an amplitude modulator whose other input is connected to the source of high-frequency oscillations, and the outputs of modulator and memory cell are connected through the limiter amplifier to the second input of the compensation module.

1/1

USSR

UDC 621.374.33

GORBUNOV, V. A., YEFREMOV, V. A.

"Statistical Optimization of the Circuit Parameters of a Field Transistor Electronic Switch"

Metody razrab. radioelektron. apparatury. No 1 (Methods of Developing Radio-electronic Equipment. No 1), Moscow, 1970, pp 76-78 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8G278)

Translation: This article contains a circuit analysis with the help of multi-dimensional vectors: the vector of random transistor characteristics, the vector of the circuit parameters and the vector of the switch output parameters. A procedure for optimal selection of the output parameter vector for which the effect of the random nature of the transistor parameters on satisfaction of the imposed limitations is reduced to a minimum is demonstrated. A random search algorithm giving a solution with acceptable accuracy is proposed.

1/1

USSR

UDC 620.179.152

GORBUNOV, V. I., NEDAVNIY, O. I., KAPRANOV, B. I., ANDREYEV, M. D., DANILOVICH, A. KH., GIZATULLIN, G. G., ZABRODSKIY, V. A., and OPOKIN, V. I., Scientific Research Institute of Electron Introsopy of the Tomsk Polytechnic Institute imeni S. M. Kirov

"Possibility of Checking Aluminum Articles Using Inversely Scattered X-Rays "

Sverdlovsk, Defektoskopiya, No 5, Oct 73, pp 43-46

Abstract : The theoretical premise of the method of checking welded closing joints of aluminum structures 5 mm thick using inversely scattered x-rays is considered. A description is given of the detection head of the defectoscope. The experimental data which characterize the limitations of the albedodefectorscope are presented. The effective sensitivity for exposing imperfections of the cavity type is 0.5 mm^3 . Further increase of sensitivity can be attained by increasing the capacity of the tube. Five illustrations.

1/1

- 3 -

USSR

UDC: 620.179.15

GORBUNOV, V. I., SVIRYAKIN, D. I., BUKREYEV, V. G., KOLUPAYEV, A. N.,
YEGORENKO, Yu. A., Scientific Research Institute of Electronic Internal
Inspection Affiliated With Tomsk Polytechnical Institute

"Radiation-Type Internal Inspection Units for Checking Materials and Parts"

Sverdlovsk, Defektoskopiya, No 3, May/Jun 71, pp 112-117

Abstract: The paper presents block diagrams and gives descriptions of
some devices based on radiation methods of internal inspection. The
basic technical characteristics of the devices are given, their advantages
and disadvantages are noted, and recommendations are made on using them.
Four figures, bibliography of three titles.

1/1

USSR

UDC 620.179.1

GORBUNOV, V. I., ZAV'YALKIN, F. M.

"Radiometric Method of Flaw Detection Using Fillers"

Sverdlovsk, Defektoskopiya, No 1, 1971, pp 119-124

Abstract: A study was made of the problem of selecting the filler as a function of the spectrum of the source and the density of the product material. Results are presented from both calculations and experimental studies of the application of a filler for controlling products made of iron and aluminum using Co-60 and Cs-137. An isotopic multichannel defectoscope for controlling cast iron crankshafts of diesel engines before machining is described. The device is designed for detecting internal flaws in accordance with the following technical specifications: 1) the thickness of the controlled product in the direction of irradiation varies from 180 to 40 mm; 2) the output capacity of the device is 40 shafts per hour at a control speed of 1,900 cm²/min; 3) the sensitivity insures flaw detection in the form a blowhole with dimensions greater than 3 × 3 × 3 mm; 4) the width of the control zone is 240 mm. The irradiation source is the cobalt-60 isotope with an activity of 700 g-Ra equivalents with high specific activity.

1/1

USSR

UDC 620.179.155

CORBUNOV, V. I., YELAGIN, V. B., and PEKARSKIY, G. Sh.

"Use of Fast Neutrons in Radiation Defectoscopy"

Moscow, Defektoskopiya, No 5, 1970, pp 53-56

Abstract: Results are presented from theoretical and experimental studies on the application of fast neutrons to defectoscopy. A defectoscope based on the use of fast neutrons is described and results are presented from testing of large thicknesses of lead and three-layered products. Evaluation of the economic effectiveness of the use of a neutron defectoscope for testing large thicknesses of lead shows that the cost of testing of one running meter is less than the cost of testing of the material with betatron defectoscopes beginning with lead thicknesses of 120 mm. A photograph of the new defectoscope, featuring strip-chart printout of results, is presented.

1/1

USSR

UDC 53.07/.08+53.001.5

GORBUNOV, V. I., POKROVSKIY, A. V., TEMNIK, A. K.

"Several Ways of Raising the Sensitivity of the Scintillation Method of Betatron Defectoscopy"

Izv. Tomsk. politekhn. in-ta (News of Tomsk Polytechnical Institute), 1970, Vol. 184, pp 136-139 (from RZh-Fizika, No 1, Jan 71, Abstract No 1A430)

Translation: Fluctuation phenomena in the electric circuits in the detection-recording section of a betatron defectoscope are analyzed on the basis of probability theory and mathematical statistics. It is shown that the most promising way of raising the signal-to-noise ratio in betatron defectoscopy with scintillation counters is the application of comb-shaped filters in the recording circuits. K. B.

1/1

- 77 -

1/3 .010

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--INDOLE CHEMISTRY. XI. SYNTHESIS OF ALPHA CARBOLINES AND
PYRIMIDO,1,2,A,INDOLES FROM 2,AMINOINDOLES -U-

AUTHOR-(04)-KOST, A.N., SAGITULLIN, R.S., GORBUNOV, V.I., MODYANOV, N.N.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (3), 359-63 (RUSS).

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INDOLE DERIVATIVE, CHEMICAL SYNTHESIS, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO-----FD70/605002/D11 STEP NO--UR/0409/70/000/003/0359/0363

CIRC ACCESSION NO--AP0139462

UNCLASSIFIED

2/3 010

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139462

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO ETONA (FROM 23 G NA IN 200 ML ETOH) WAS ADDED AT 150DEGREES 146 G (ETO SUB2 C) SUB2 AND 137 G O,NITROTOLOUENE (I). THE MIXT. WAS REFLUXED 25 MIN, 100 ML H SUB2 O ADDED, ADN REFLUX CONTINUED FOR 1 HR. ETOH AND I WERE STEAM DISTD., THE REMAINING SOLN. WAS TREATED WITH NORIT AT 75-80DEGREES, AND THEN AT 50DEGREES WAS ADDED 49 G NH SUB2 OH.HCL IN 75 ML H SUB2 O TO YIELD 57PERCENT O,NITROPHENYLPYRUVIC ACID OXIME (II), M. 158-60DEGREES. II REFLUXED IN H SUB2 O WITH ACOH GAVE O,NITROBENZYL CYANIDE (III), M. 78-82DEGREES. III, REDUCED IN PROH WITH SN AND HCL GAVE O,AMINOBENZYL CYANIDE (IV) IN 90PERCENT YIELD. IV (16 G) IN 100 ML ISO-PROH WAS ADDED TO ISO-PRONA (FROM 10 G NA IN 200 ML PROH) AND THE MIXT. REFLUXED 1 HR UNDER H TO YIELD 70PERCENT 2,AMINOINDOLE,HCL (V), M. 224-6DEGREES. V WITH MEI GAVE 90PERCENT 1,METHYL,2AMINOINDOLE,HI (VI), M. 262-3DEGREES. SIMILARLY WAS OBTAINED IN 65PERCENT YIELD 1,BENZYL,2,AMINO,INDOLE,HCL, M. 256-9DEGREES, AND IN 76PERCENT YIELD 1,CARBETHOXY,2,AMINO,INDOLE,HCL, M. 255-8DEGREES. A MIXT. OF 1 G VI, 0.75 G AC SUB2 CH SUB2 IN 8 ML DRY C SUB5 H SUB5 N WAS REFLUXED 2.5 HR UNDER INERT GAS TO YIELD 100PERCENT VII (R EQUALS MEI) M. 110-11DEGREES (DIL. ETOH), PICRATE M. 229-30DEGREES (MEOH). SIMILARLY WAS OBTAINED IN 64PERCENT YIELD V (R EQUALS PHCH SUB2), M. 120.5-1.5DEGREES (MEOH), PICRATE M. 227-9DEGREES (ETOH). A MIXT. OF 1 G VI, 2 G MALONALDEHYDE DIETHYL ACETAL AND 0.7 ML HCL IN 3 ML ETOH WAS KEPT 20 MIN AT ROOM TEMP., 15 ML C SUB5 H SUB5 N ADDED ADN THE MIXT. KEPT OVERNIGHT TO YIELD 8PERCENT 1,METHYL,ALPHA,CARBOLINE M. 53DEGREES (HEXANE), PICRATE M. 225DEGREES (MEOH).

UNCLASSIFIED

3/3 010

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139462

ABSTRACT/EXTRACT--A MIXT. OF 1 G V AND 0.75 G AC SUB2 CH SUB2 IN 10 ML C
SUB5 H SUB5 N WAS REFLUXED 1.5 HR IN INERT GAS ATM. TO YIELD 88PERCENT
VIII, M. 111.5-12.5DEGREES, PICRATE M. 227-9DEGREES (MEOH).
FACILITY: MOSK. GOS. UNIV., MOSCOW, USSR.

UNCLASSIFIED

1/2 017
UNCLASSIFIED
TITLE--TRANSFER OF SUBSTITUENT EFFECTS ACROSS THE INDOLE RING -U-
PROCESSING DATE--30OCT70
AUTHOR--(05)--KOST, A.N., MINKIN, V.I., SAGITULLIN, R.S., GORBUNOV, V.I.,
SADEKOV, I.D.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(4), 845-53
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--INDOLE DERIVATIVE, CARBOXYLIC ACID, ELECTRON DONOR, CHEMICAL
SUBSTITUENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2081
STEP NO--UR/0366/70/006/004/0845/0853
CIRC ACCESSION NO--AP0125668
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125668

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PK VALUES AND SIGMA CONSTS. (TAFT, HAMMETT, WEBSTER, AND DEWAR CONSTS.) WERE DETD. FOR SUBSTITUTED INDOLE, 2-CARBOXYLIC ACIDS (I). THE TRANSFER OF THE ELEC. CHARGES IN THIS RING SYSTEM IS WEAKER THAN IN CARBOCYCLIC SYSTEMS. THE ELECTRON DONATING GROUPS HAVE VERY LITTLE EFFECT. THE RELATION OF STRUCTURE WITH THE PK OF I IS BEST EXPRESSED IN TERMS OF THE DEWAR THEORY.
FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0108260

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EFFECT OF THE FE CONCN. ON THE MAGNETIC PROPERTIES OF ALLOYS CONTG. PT 50, CO 20-50, AND FE 0-30 AT. PERCENT WAS STUDIED. THE ALLOYS WERE COOLED FROM 1300DEGREES IN A FURNACE OR IN AIR OR QUENCHED IN WATER OR OIL AND TEMPERED AT 700-800DEGREES FOR 3 HR. AN INCREASE OF THE FE CONCN. INCREASED THE CRIT. COOLING RATE (WHICH FOR 10, 20, AND 30 AT. PERCENT CORRESPONDED TO COOLING IN AIR, QUENCHING IN OIL, AND IN WATER, RESP.) AND DECREASED COERCIVE FORCE H SUBC THAT FOR 30PERCENT FE WAS SMALLER THAN OR EQUAL TO 1350 OE. INCREASE OF THE DEGREE OF ORDER SIGNIFICANTLY DIMINISHES SATN. BUT THE ALLOYING OF CO-PT ALLOY WITH FE INCREASES IT NOT ONLY IN THE AS QUENCHED BUT ALSO IN THE ANNEALED AND TEMPERED CONDITIONS. THE SATN. OF ALLOYS CONTG. 10-20 AT. PERCENT FE DURING THE 1ST MIN OF THE ISOTHERMAL TEMPERING RAPIDLY DECREASES BUT THE DEGREE OF THIS DECREASE DIMINISHES WITH AN INCREASE OF FE CONCN. E.G. SATN. OF THE AS QUENCHED (IN WATER) 10 AND 30PERCENT FE ALLOYS WAS 10,100 AND 7300 G AND AFTER 0.25 HR OF TEMPERING AT 800DEGREESC THEY WERE SIMILAR TO 5000 AND SIMILAR TO 7000 G, RESP. THIS EFFECT OF FE WEAKENS WITH A DECREASE OF TEMPERING TEMP. FROM 800 TO 700DEGREES. THE MAGNITUDE OF H SUBC DEPENDS ON THE CONDITION OF ALLOY. THE MAX. H SUBC (3800 OE) WAS OBSD. FOR THE 10PERCENT FE ALLOY TEMPERED AT 700DEGREES. GENERALLY TERNARY CO-PT-FE ALLOYS SHOW LOWER H SUBC VALUES BUT GREATER STAN. AND RESIDUAL INDUCTION IN ORDERED AS WELL AS IN DISORDERED STATE THAN BINARY CO-PT ALLOYS.

UNCLASSIFIED

ELECTRONICS
Amplifiers

USSR

UDC 621.375.087.9.085.414

GORBUNOV, V. L., SALAKHUTDINOV, V. Kh.

"Logarithmic Amplifier With D-C Amplifier Circuit"

Sb. nauch. tr. po probl. mikroelektron. Mosk. in-t elektron. tekhn.
(Collection of Works on the Problems of Miniature Electronics,
Moscow Institute of Electronics Engineering) No 9, 1972 (Physics-
Mathematics Series) pp 249-252 (from RZh--Radiotekhnika, No 10,
1972, Abstract No 10D89)

Translation: The application of semiconductor diodes and triodes
as nonlinear elements performing logarithmic transformations is
considered, with such elements usually wired as inputs or outputs
of amplifiers or in feedback circuits. A logarithmic amplifier
circuit is given in which the dependence of a transistor collector
current in a feedback circuit on the emitter voltage at the p-n
junction is used. N. S.

1/1

USSR

UDC 678.643.01:53

LI, P. Z., STAROSTIN, V. N., FILIPPENKO, D. M., TARASOV, YE. V., and GORBUNOV, V. N.

"Glass-Textolite Based on Compositions Containing 4-Vinyl-1,2-epoxy-cyclohexane"

Moscow, Plasticheskiye Massy, No 10, 1970, pp 14-15

Abstract: In an attempt to develop materials capable of prolonged exposure to high temperatures, compositions containing 4-vinyl-1,2-epoxycyclohexane (VECH), dioxide of the dicyclopentadiene (DODCP), ED-5 resin and maleic anhydride (MA) were studied. The materials were subjected to a short and long term exposure to high temperatures. Data on thermomechanical properties, weight loss on heating, dielectric permeability and maximum strength on static bending are reported graphically. On the basis of experimental results materials composed of 12.1 VECH + 48.3 DODCP + 39.6 MA or 9.3 VECH + 23.2 DODCP + 23.2 ED-5 + 43.3 MA can be used for prolonged periods at 250°C temperature, while the composition consisting of 16.2 VECH + 48.9 ED-5 + 34.9 MA can be used at 200°C for extended periods.

1/1

- 105 -

USSR

UDC 536.46+662.222.1

GORBUNOV, V. V., SHIDLOVSKIY, A. A., Moscow

"Combustibility of Hydroxylamine and Hydrazine Salts"

Novosibirsk, Fizika Goreniya i Vzryva, No. 4, Dec. 70, p. 471-474.

Abstract: The significant exothermal nature of the thermal decomposition and combustion of NH_2OH and N_2H_4 means that not only these salts, but their water and acid solutions can burn. A thermochemical evaluation of the decomposition of the chlorides and sulfates of NH_2OH and N_2H_4 is presented. Conditions under which these compounds will burn are described. The leading reaction in the combustion of these salts is the exothermic decomposition of hydroxylamine or hydrazine. One of the main combustion products is ammonia, which forms salts-chlorides or sulfates. There is no gaseous hydrogen in the combustion products.

1/1

- 47 -

USSR

UDC: 662.220

6
VASIL'YEV, A. V., GORBUNOV, V. V. and SHIDLOVSKIY, A. A., Moscow Chemical Machine Building Institute, Moscow, Ministry of Higher Education USSR

"The Effect of Certain Additives on the Critical Diameter and the Rate of Combustion of Aluminum - Gelatinized Water Mixtures"

Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol XIII, No 3, 70, pp 318-321

Abstract: The authors studied the effect of addition of 1 - 5% of Li, Na, K, and Al fluorides to a standard mixture of Al $\angle (Al + H_2O)_{stoichi}$ as a means of overcoming the retardation of ignition and combustion caused by the presence of a stable oxide film on the Al particles. All of these additives improved inflammability and reduced critical diameter of combustion at atmospheric pressure, the highly soluble NaF and KF being the most effective. From the significant increase in pH of aqueous NaF and KF upon the addition of an $Al(OH)_3$ suspension, it is assumed that the improvements noted are the result of intensive disruption of the oxide film by the hot solutions.

1/1

1/2 034 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--INFLUENCE OF SOME ADDITIVES ON THE CRITICAL, PARTICLE DIAMETER AND
RATE OF COMBUSTION OF MIXTURES OF ALUMINUM WITH GELLED WATER -U-
AUTHOR--(03)-VASILYEV, A.V., GORBUNOV, V.V., SHIDLOVSKIY, A.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(3),
318-21

DATE PUBLISHED-----70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--GEL, AQUEOUS SOLUTION, NICHROME ALLOY, CELLULOSE, COMBUSTION
RATE, ALUMINUM, ALUMINUM FLUORIDE, LITHIUM FLUORIDE, POTASSIUM COMPOUND,
SODIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3008/0601

STEP NO--UR/0153/70/013/003/0318/0321

CIRC ACCESSION NO--AT0137686

UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--04DEC70

GIRC ACCESSION NO--AT0137686

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF 1-5PERCENT LIF, NAF, KF, OR ALF SUB3 TO A MIXT. OF POWD. AL (L MU AV. PARTICLE SIZE) AND A STOICHIOMETRIC AMT. OF H SUB2 O GELLED WITH 3PERCENT NA CM-CELLULOSE, INCREASES THE INFLAMMABILITY OF THE MIXT. WHEN SUBJECTED TO A HEATED NICHROME SPIRAL, AS INDICATED BY VELOCITY AND TIME OF BURNING, AND CRIT. SIZE OF COMBUSTIBLE AGGREGATES. THE READILY SOL. NAF AND KF ARE MORE EFFECTIVE THAN LIF AND ALF SUB3. AN INCREASE IN PH OF NAF AND KF SOLNS. WHEN MIXED WITH SUSPENDED AL(OH)SUB3 SHOWS THAT THESE SALTS AFFECT THE FLAMMABILITY OF AL BY DESTROYING AN OXIDE FILM. FACILITY: MOSK. INST. KHIM. MASHINOSTR., MOSCOW, USSR.

UNCLASSIFIED

USSR

USSR
Aluminum and Its Alloys

UDC: 621.762.2:669.71

ZHILKIN, V. Z., GORBUNOV, Yu. A., SHEPEL'SKIY, N. V.

"Methods of Granulation of Aluminum Melts"

Liteyn. Proiz-vo, Metalloved. i Obrabotka Met. Davleniyem [Foundry Production Metal Science and Pressure Working of Metals -- Collection of Works], No 6, Krasnoyarsk, 1972, pp 95-100 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G391, by the authors).

Translation: Methods are studied for production of Al granules, based on centrifugation and vibration of a melt. The characteristics are presented for installations using these principles. Modes of production of granules satisfying the technological conditions of rolling are determined. Due to the low productivity of vibration installations, centrifugal casting of granules is recommended for production conditions. 3 figures.

1/1

USSR

UDC: 621.762.2:669.71

ZHILKIN, V. Z., KUZNETSOV, A. N., GORBUNOV, Yu. A., SHEPEL'SKIY, N. V.

"Influence of Temperature of Aluminum Melt and Rotation Rate of Cooling Fluid on Formation of Granule Shape During Centrifuging"

Liteyn. Proiz-vo, Metalloved. i Obrabotka Met. Davleniyem (Foundry Production Metal Science and Pressure Working of Metals -- Collection of Works), No 6, Krasnoyarsk, 1972, pp 92-94 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G392, by the authors).

Translation: The influence of the temperature of a melt and rate of rotation of the cooling medium on the shape of Al granules produced by the centrifugal method is studied. The optimal intervals of values of these factors for the production of particles of equiaxial form are determined. 1 figure, 3 biblio. refs.

1/1

- 1 -

Acc. Nr: **AP0041316**

Ref. Code: UR 0422

PRIMARY SOURCE: Standarty i Kachestvo, 1970, Nr 1, pp 21-24

Typization Accelerates Development of Manufacturing
Procedures in Tool Production.

Kostolomov, E. F.; Gorbunov, Yu. M.; Lisitsa, Ya. G.

The article describes practical applications of typified manufacturing processes in the operation of a tool shop. Typization is very efficient here, as frequent repetitions of objects, specific for all the tool shops, bring about favourable conditions for introducing the typified manufacturing processes.

MT

REEL/FRAME
19751171

18

1/2 023 UNCLASSIFIED
TITLE--ON NUTRITIVE ALLERGY -U- PROCESSING DATE--18SEP70
AUTHOR--(02)--NOGALLER, A.M., GORBUNOV, YU.V.
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 2, PP 82-84
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ALLERGIC DISEASE, ANTIBODY, FOOD, SKIN TEST
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1982/0797 STEP NO--UR/0475/70/000/002/0032/0084
CIRC ACCESSION NO--AP0052234
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--13SEP70

CIRC ACCESSION NO--AP0052234

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POSITIVE INTRACUTANEOUS TESTS TO INTRODUCTION OF NUTRITIVE ALLERGENS HAVE BEEN FOUND IN 101 (33PERCENT) OF 308 PATIENTS WITH COMPLAINTS OF FOOD INTOLERANCE. IN THE ABSENCE OF CLINICAL SYMPTOMS OF NUTRITIVE ALLERGY CUTANEOUS TESTS PROVED NEGATIVE. FREELY CIRCULATING ANTIBODIES TO FOOD PRODUCTS WERE DETECTED BY MEANS OF THE PRAUSNITZ KUSTNER REACTION IN 45PERCENT OF PATIENTS AND BY MEANS OF THE SHELLEY REACTION OF BASOPHIL DEGRANULATION IN 37PERCENT. ALL THESE PATIENTS SHOWED DISTINCT CLINICAL SYMPTOMS OF NUTRITIVE ALLERGY AND POSITIVE CUTANEOUS TESTS TO FOOD ALLERGENS. DETECTION OF NUTRITIVE ALLERGY SHOULD BE BASED ON COMPLEX EVALUATION OF CLINICAL DATA AND STUDY OF ANTIBODIES TO THE SUSPECTED FOOD PRODUCTS.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--DECREASE IN THE CAPACITY OF POLY,VINYL CHLORIDE PLASTICS TO
ACCUMULATE STATIC ELECTRICITY -U-
AUTHOR--(04)-GELFMAN, YA.A., GORBUNOVA, A.A., SHISHKINA, I.V., KUSKOVA,
V.P.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 263,137
REFERENCE--DTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--POLYVINYL CHLORIDE, STATIC ELECTRICITY, CHEMICAL PATENT,
ANTISTATIC ADDITIVE, STYRENE, BUTADIENE, BENZENE, COPOLYMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1407

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128806

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128806

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CAPACITY OF POLY(VINYL CHLORIDE) (I) PLASTICS TO ACCUMULATE STATIC ELECTRICITY WAS DECREASED BY THE ADDN. OF ANTISTATIC AGENTS, SUCH AS A MIXT. OF STYRENE, DIVINYLBENZENE COPOLYMER WITH NH SUB4 NO SUB3, CORRESPONDING TO 2-7 AND 0.5-3 WT. PERCENT I. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF NEW CONSTRUCTION MATERIALS.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ANTISTATIC POLY,VINYL CHLORIDE PLASTICS -U-
AUTHOR-(04)-GELEMAN, YA.A., GORBUNOVA, A.S., SHISHKINA, I.V., KUSKOVA,
V.P.
COUNTRY OF INFO--USSR
SOURCE--USSR 263,138
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI, 1970,
DATE PUBLISHED--04FEB70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--POLYVINYL CHLORIDE, ANTISTATIC ADDITIVE, MONETHANOLAMINE,
OLEIC ACID, CHEMICAL PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1479 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0128878
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128878

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CAPACITY OF POLY(VINYL CHLORIDE) PLASTICS TO ACCUMULATE STATIC ELECTRICITY IS DECREASED BY THE ADDN. OF ANTISTATIC AGENTS, SUCH AS A 2:1 MIXT. OF OLEIC ACID AND ETHANOLAMINE. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF NEW CONSTRUCTION MATERIALS.

UNCLASSIFIED

GORBUNOVA, A.V.

Superscript numbers in parentheses refer to items in the Reference list.

UNIVERSITY

(10) One of the new articles was issued jointly from IMPP and the Laboratory of General and Radiation Immunology at the Institute of Epidemiology and Microbiology from N. P. Gerasimov (6). This 1970 article, dealing with the effects of microclima on lymphoid tissue and the adrenal gland, probably

Author	Topic	Year
Goldman, A. V.	space physiology/psychology	1970 (1)
Goldman, D. S.	hypotension/physiology	1971 (2)
Goldman, V. P.	nutrition	1971 (3)
Goldman, V. P.	temperature measurement	1970 (4)
Kozal, V. M.	space physiology/psychology	1970 (1)
Kozal, D. M.	temperature measurement	1970 (4)
Kozal, D. M.	spacecraft radiation shielding	1970 (5)
Kozal, D. M.	spacecraft radiation shielding	1970 (5)

(iv) During this quarterly reporting period, seven new articles (1-7) were located from the Institute of Medicine-Biological Problems (IMBP). On the basis of these articles, it was possible to identify eight new personalities with the Institute. These personalities, the subjects of the articles, and the dates are given below:

SECRETION: Institute of Medicine-Biological Problems (IMBP), Moscow

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201010003-2"

USSR

UDC 546.284-31:66.093.8

ARSLAMBKOV, V. A., GORBUNOVA, K. M., KARATEYEVA, V. I., and SMUCHCHENKO, V. YA., Institute of Physical Chemistry, Academy of Sciences USSR

"Properties of SiO_2 Films, Prepared by the Hydrolysis of SiF_4 "

Moscow, Neorganicheskiye Materialy, Vol 9, No 12, 1973, pp 2120-2123

Abstract: The precipitation of the SiO_2 films was carried out at temperatures of 550 to 730°C and concentrations of H_2SiF_6 of 13, 21, and 45%. A graph shows the deposition rate as a function of the substrate temperature and the vaporized acid, being a maximum for the highest values of both. Measurement of the breakdown voltage at 15-20 points showed that a film 2.4 μ thick had a breakdown voltage of 7×10^6 v.cm, whereas films 1.7 and 0.83 μ had breakdown voltages of 8×10^6 and 7.5×10^6 v/cm, respectively. Treatment of the surface with organic solvents changed the breakdown voltage somewhat. Curves for the distribution of contact differences in the surface potential ϕ are also shown. Characteristic differences are observed which may be a function of the heterogeneous distribution of charge in the layers which is in turn a function of the preparation methods.

1/1

USSR

UDC 546.3-19

IVANOV, M. V., MOISEYEV, V. P., and GORBUNOVA, K. M., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Structure and Some Properties of Ni-B Coatings Obtained by Chemical Reduction"

Moscow, Doklady Akademii Nauk SSSR, Vol 194, No 3, 1970, pp 610-613

Abstract: The article describes results of a study of the structure and some properties (hardness and magnetic characteristics) of Ni-B coatings and considers phase transformations induced by heat treatment. Thermographic and X-ray studies show that during annealing of the coatings not only the Ni_3B phase occurs, but also the Ni_2B . The quantity and nature of these phases determine the properties of the coatings subjected to annealing. An unusual relationship is found between the kinetics of the process of segregation of the Ni_3B and Ni_2B phases and the ratio of the concentrations of the components of the initial solid solution and these phases. This requires further quantitative analysis.

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CATHODIC REDUCTION OF LEAD DIOXIDE. II. REDUCTION OF ALPHA LEAD
DIOXIDE IN ALKALI SOLUTIONS -U-
AUTHOR--(03)--LYAMINA, L.I., KOROLKOVA, N.U., GORBUNOVA, K.M.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIMIYA 1970, 6(3), 394-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL REACTION MECHANISM, CHEMICAL REDUCTION, LEAD OXIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1137 STEP NO--UR/0364/70/006/003/0394/0397
CIRC ACCESSION NO--AP0121696
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0121696

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MECHANISM OF PBO SUB2 CATHODIC REDN. WAS STUDIED IN 0.1-7N KOH SOLNS. BY CHARGING CURVE METHOD. THE ALPHA PBO SUB2 DEPOSIT OBTAINED ON THE ANODE FROM ALK. PLUMBITE ELECTROLYTE WAS SUBJECT TO REDN., ITS EXACT COMPN. BEING PBO SUB1.91. THE REDN. PROCESS PROCEEDED IN 2 STAGES; THE 1ST (AT C.DS. OF 0.5-2 MA-CM PRIME2) WAS ASSOCD. WITH THE FORMATION OF AN INTERMEDIATE OXIDE OF COMPN. PBO SUB1.39 INDEPENDENTLY OF THE KOH CONC. ON ATTAINING THIS STATE THE POTENTIAL INCREASED SHARPLY TO 0.56 V CORRESPONDING TO THE REDN. OF THIS OXIDE TO PB. MEASUREMENTS OF THE COMPONENTS OF IMPEDANCE DURING POLARIZATION OF THE ELECTRODE UNDER GALVANOSTATIC CONDITIONS REVEALED THAT THE REDN. STARTED AT THE PBO SUB2 ELECTROLYTE INTERFACE AND THEN PROCEEDED AT 2 INTERFACES (PBO SUB2 ELECTROLYTE AND INTERMEDIATE OXIDE); AS A RESULT, THIS PROCESS WAS ACCOMPANIED BY A CONC. POLARIZATION IN THE INTERMEDIATE OXIDE PHASE. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 616.12-008.331.1.616-001.18

MEYERSON, F. Z., BARBARASH, N. A., DVURECHENSKAYA, G. Ya., and GORBUNOVA, L. A., Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, and Kemerovo Medical Institute, Kemerovo

"Effect of Preliminary Adaptation to Cold on the Development of Experimental Hypertension"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 5, 1973, pp 1,243-1,245

Abstract: It had been established in earlier work that adaptation of animals to altitude hypoxia on intermittent exposure inhibited the development of hypertension produced by the combined action of NaCl and desoxycorticosterone (DPCS). Experiments conducted on rats in this instance showed that adaptation to cold had a similar effect in inhibiting the development of salt-DOCS hypertension. Adaptation to cold was carried out by exposing the rats to a temperature of 0-4° for 6 hrs per day during 110 days. Salt-DOCS hypertension was induced by implanting to the animals 50 mg/100 g DOCS subcutaneously seven days after a nephrectomy on the left side, repeating the implantation after another seven days, and giving to the animals a 1% NaCl solution to drink instead of ordinary water. The arterial pressure of experimental

1/2

- 45 -

USSR

MEYERSON, F. Z., et al., Doklady Akademii Nauk SSSR, Vol 210, No 5, 1973, pp 1,243-1,245

animals adapted to cold and treated with NaCl-DOCS increased briefly to the same level as that of unadapted animals in which hypertension was induced with NaCl and DOCS, but then dropped back to normal, while that of the control animals continued to increase. During the period following the first two weeks of the experiment, in which the arterial pressure of the cold-adapted animals was substantially lower than that of unadapted animals, the unadapted animals with NaCl-DOCS hypertension drank much more NaCl solution than the animals adapted to cold. The retention of Na in the aorta wall and the pressure effect of noradrenaline were lower for adapted than unadapted animals, while no difference in the blood-pressure lowering action of acetylcholine was observed. (Submitted by Academician V. N. Chernigovskiy, 15 Dec 72)

2/2

Acc. Nr:

AP0052069

Ref. Code: UR0396

PRIMARY SOURCE: Patologicheskaya Fiziologiya i
Eksperimental'naya Terapiya, 1970, Vol 14,
Nr 1, pp 68-71

CHANGES OF ERYTHROPOIETINS FOLLOWING ACUTE BLOOD LOSS IN DOGS

G. P. Moskaleva, B. A. Serebryanaya, N. A. Gorbunova

The authors studied the results of changes of erythropoietins in the blood serum of dogs following acute blood loss on 25 dogs, 185 rats and 119 mice. Biphasic character of accumulation of erythropoietins in the blood serum of dogs was shown on the first and 5th day after acute blood loss. In comparing the dynamics of the erythropoietin content with the changes in the peripheral blood and bone marrow it was noted that the first phase of erythropoietin accumulation paralleled the increase of mitotic activity of erythroblasts and the reticulocyte count in the bone marrow and the peripheral blood; this was possibly associated with hypoxia caused by blood loss. The second phase of increase of erythropoietic activity coincided with bone marrow activation and with reticulocytic crisis in the peripheral blood. A conclusion was drawn on the importance of erythropoietins in the mechanism of blood regeneration following blood loss.

11

REEL/FRAME
19820607

Vol 2

1/2 014
TITLE--POLYURETHANES -U-

UNCLASSIFIED

PROCESSING DATE--30OCT70

AUTHOR--(04)--MARCHENKO, G.N., GOLDOBIN, S.F., GORBUNOVA, N.N., CHELYSHEV,
A.A.

COUNTRY OF INFO--USSR

SOURCE--USSR 264,688

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--03MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYURETHANE RESIN, CHEMICAL PATENT, ORGANOMERCURY COMPOUND,
CATALYST, ORGANIC SYNTHESIS, ORGANIC ISOCYANATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1467

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128666

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0128866

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. POLYURETHANES ARE PREPD. BY
REACTING HYDROXY CONTG. COMPS. AND POLYISOCYANATES IN THE PRESENCE OF
ORGANOMETALLIC CATALYSTS. CATALYSTS USED ARE ALKYL OR ARYL MERCURY
DERIVS. OF INORG. OR CARBOXYLIC ACIDS, RHGX OR RHGO SUB2 CR PRIME1,
WHERE R IS A HYDRCCARBON GROUP, X IS HALOGEN, AND R PRIME1 IS A
CARBOXYLIC ACID RESIDUE CONTG. 1-18 C ATOMS.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EXTRACTION AND PHOTOMETRIC DETERMINATION OF GOLD -U-

AUTHOR--(03)--BLSEV, A.I., IVANOV, V.M., GORBUNOVA, N.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 461-5

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--GOLD, EXTRACTIVE METALLURGY, PHOTOMETRIC ANALYSIS, SLIME,
ANODIC REFINING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3001/0480

STEP NO--UR/0075/70/025/003/0461/0465

CIRC ACCESSION NO--AP0126232

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126232

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AU IS DETD. BY AN EXTN.

PHOTOMETRIC METHOD BY USING

(4, DIMETHYLAMINOPHENYL) (4, BENZYL METHYLAMINOPHENYL) ANTIPYRYL CARBINOL (CHROMOPYRAZOLE-I) (I). I DISSOLVES IN H SUB2 O GIVING A VIOLET COLOR WITH ABSORBANCE MAX. AT 470-80 AND 600 NM, RESP. I IS EXTND. BY NONPOLAR SOLVENTS. AFTER AU ADDN. THE COLOR DOES NOT CHANGE, BUT THE PHME EXT. HAS AN ABSORBANCE MAX. AT 580 NM. OPTIMUM CONDITIONS FOR COMPLEX FORMATION EXIST AT PH 1.0-2.0 AND A 20-30 FOLD EXCESS OF I. THE ABSORBANCE OF THE EXTS. IS PROPORTIONAL TO AU CONCN. FOR 0.5-2.5 MUG AU-ML; THE MOLAR ABSORPTIVITY IS (6.08 PLUS OR MINUS 0.07) TIMES 10 PRIME4. I CAN BE USED TO DET. 6.6-1.1 PERCENT IN DORE ALLUY, 0.01-0.11 PERCENT AU IN THE DUST PRODUCED DURING THE FUSION OF THE ANODIC SLIME, AND 0.0045-0.0670 PERCENT AU IN THE SLAG AFTER REMELTING ANODIC SLIME. AU CAN BE DETD. WITHOUT SEPN. FROM OTHER ELEMENTS DIRECTLY AFTER DISSOLN. OF THE SAMPLE. FACILITY: MOSCOW STATE UNIV., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 547.754.756:542.944.1

KOST, A. N., GORBUNOVA, S. M., and BUDYLIN, V. A., Moscow State University
imeni M. V. Lomonosov, and the Novokuznetsk Scientific-Research Chemico-
Pharmaceutical Institute

"Indole Chemistry. XXVII. 2-Halogenacetylindoles"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 11, Nov 9171, pp 1522-1526

Abstract: The halogen ketones of the indole series are important in the synthesis of aminoketones, ketonitryls, oxyketones and various other derivative compounds; but among these compounds, little study has been made of those containing a halogen-acyl radical in position 2 of the indole nucleus. From substituted 2-diazoacetylindoles, was synthesized a series of eight halogen-acetylindoles. Direct bromination of 3-methyl-2-acetylindole proceeds around the acetyl group, with formation of 3-methyl-2-bromacetylindole. In the case of 2-acetylindole, there is simultaneous bromination of the CH_3 group and of position 3 of the pyrrole ring.

1/1

- 57 -

USSR

UDC 615.012.8

KLIUYEVA, L. M., and ~~GORBUNOVA, S. S.~~, All-Union Scientific Research Institute of Antibiotics, Moscow

"Continuous Regeneration of the Cation Exchanger KB-2 From Hydrogen to the Salt (Sodium) Form"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 5, No 11, 1972, pp 43-45

Abstract: Regeneration was carried out with 0.1, 0.5, and 1.0 N NaOH. The best results were obtained with 0.5 N NaOH used approximately at the rate of 100 ml/hour·cm², and 30 g/hour of the cation exchanger KB-2, in a four-section column. Absorption of Na ions in this case reached 97% in two hours, with 85% removal of Na⁺ from the regenerant. Extension of the contact time to 5.6 hours, increased the exchange of H for Na ions by only 0.5-1%. The suggested regeneration procedure made possible a four-fold decrease in the consumption of NaOH in comparison with periodic regeneration.

1/1

Acc. Nr:

AP050713

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code:

4R0368

G

94392r Intake and radiation of atoms in a discharge with a hot hollow cathode. Gorbunova, T. M.; Semenova, O. P. (USSR). *Zh. Prikl. Spektrosk.* 1970, 12(1), 17-20 (Russ). Intake of atoms into the excitation zone during a discharge in a hot hollow cathode changes with increased c.d. and with resultant rising temp. of the cathode. When the temp. is too low for evapn. or sublimation of a compd. which is introduced into the hollow cathode, the intake is controlled by cathode sputtering. Expts. with Fe and He reveal that atom-atom collisions in a hot-hollow-cathode discharge affect the distribution of energy levels of the investigated species. The distance between energy levels having Boltzmann distribution of population increases with increasing temp. of the investigated gas. HMJR

I 13

21

REEL/FRA
19810711

1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THERMOOXIDATIVE BREAKDOWN AND STABILIZATION OF POLYESTER
PLASTICIZERS -U-
AUTHOR-(05)-LEVANTOVSKAYA, I.I., YAZVIKOVA, M.P., BARSHTEYN, R.S.,
GORBUNOVA, V.G., ISAYEVA, Z.S.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (2), 52-4
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--THERMAL DEGRADATION, OXIDATIVE DEGRADATION, PLASTICIZER,
POLYESTER RESIN, GLYCOL, THERMAL STABILITY, CHEMICAL STABILIZER,
PHOSPHORUS COMPOUND, ORGANIC SULFUR COMPOUND, PHENOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0681

STEP NO--UR/0191/70/000/002/0052/0054

CIRC ACCESSION NO--AP0119589

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119589

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OXIDATIVE THERMAL DEGRADATION OF POLYESTER PLASTICIZERS (I), PREPD. FROM ADIPIC ACID (II) AND ALKYLENE GLYCOLS (E.G., HOCH SUB2 CH SUB2 OH, HOCH SUB2 (CH SUB2) SUB3 CH SUB2 OH, HOCH SUB2 (CH SUB2) SUB4 CH SUB2 OH), II AND ISOGLYCOLS (E.G., HOCH SUB2 CH(OH)ME, HOCH SUB2 CH SUB2 CH(OH)ME, AND HOCH SUB2 CME SUB2 CH SUB2 OH), II AND OXYALKYLENE GLYCOLS (III) (E.G., OICH SUB2 CH SUB2 OH) SUB2, HOIC SUB2 H SUB4 O) SUB3 H, AND POLY(ETHYLENE GLYCOL) OF MOL. WT. 400) WAS STUDIED AT 120-200DEGREES. I PREPD. FROM II AND III WERE THE MOST SUSCEPTIBLE TO OXID. THE THERMAL STABILITY OF I WAS INVERSELY PROPORTIONAL TO THE NO. OF CH SUB2 GROUPS IN THE GLYCOL. THE MOST EFFECTIVE STABILIZERS OF I WERE POLYGARD, POLYPHOSPHINITE, AND ESP. 2.2 PRIME,THIOBIS(4,METHYL,6,TERT,BUTYLPHENOL).

UNCLASSIFIED

Acc. Nr.

AP0048840

Abstracting Service:
CHEMICAL ABST.

5-76

Ref. Code

UR0459

91078g Polyester plasticizers studied by nuclear magnetic resonance. Identification of structure and determination of molecular weight. Urman, Ya G.; Khramova, T. S.; Gorbunova, V. G.; Barshtein, R. S.; Sionim, I. Ya. (Nauch.-Issled. Inst. Plast. Mass. Moscow, USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 160-4 (Russ). NMR spectra of $\text{BuO}[\text{CO}(\text{CH}_2)_n\text{CO}_2\text{RO}]_m\text{Bu}$ (I) [R is $(\text{CH}_2)_2$, $(\text{CH}_2)_4$, $(\text{CH}_2)_6$, $(\text{CH}_2)_8$, CH_2CHMe , $(\text{CH}_2)_2\text{CHMe}$, $(\text{CH}_2\text{CH}_2)_2\text{O}$, $(\text{CH}_2\text{CH}_2\text{O})_2\text{CH}_2\text{CH}_2$, $(\text{CH}_2\text{CH}_2\text{O})_3\text{CH}_2\text{CH}_2$, or $(\text{CH}_2\text{CH}_2\text{O})_n\text{CH}_2\text{CH}_2$] prepd. by transesterification of $\text{BuO}_2\text{C}(\text{CH}_2)_n\text{CO}_2\text{Bu}$ with HOROH confirm their linear polyester structure. All I contain BuO end groups which give a signal at 0.95 δ . The signal intensity was used to det. the no.-av. mol. wt. of I to ~5000 with 10-15% accuracy. CPJR

//

LD

7

REEL/FRAME
19800607

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SULFUR VULCANIZATION OF RUBBER MIXES -U-
AUTHOR-(02)-FRENKEL, R.SH., GORBUNOVA, V.I. 6
COUNTRY OF INFO--USSR
SOURCE--USSR 263,134
REFERENCE--UTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--SULFUR, VULCANIZATION, RUBBER, COMPLEX COMPOUND, ZINC OXIDE,
GLYCINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1479 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0128877
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSIGN NO--AA0128977

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. S VULCANIZATION OF RUBBER MIXES
BASED ON UNSATD. RAW RUBBERS IS CARRIED OUT WITH ZNO OR GLYCINE
COMPLEXES AS ACTIVATORS.

UNCLASSIFIED

USSR

UDC 616.24+616.594.171.2]-08

TRINUS, Ye. K., BARCHUK, V. F., and GORBUNOVA, Ye. N., Kiev Scientific Research Institute of Infectious Diseases, Ministry of Health, Ukrainian SSR

"Treatment of Pulmonary Candidiasis"

Kiev, Vrachebnoye Delo, No 9, 1971, pp 25-26

Abstract: Five patients suffering from pulmonary candidiasis as a complication of acute bacterial pneumonia or bronchitis received daily 4,000,000 to 8,000,000 units of nystatin by inhalation or 2,000,000 to 3,000,000 units of levorin [antifungal antibiotic obtained from *Actinomyces levoris* Krass. and *Actinomyces globisporus*] along with other fungicides (methylene blue, iodine preparations, nitrofurantoin derivatives) and vitamins C and B. These agents improved the patients' general condition, lowered their body temperature, and eliminated the candidiasis symptoms, but x-rays and physical findings indicated that the process was continuing. Stable improvement was brought about by the inhalation of water-soluble nystatin or levorin (200,000 units) twice a day for 5 to 10 days. One patient (whose case history was presented in some detail) who could not tolerate inhalation of water-soluble levorin responded to rectal administration of the antibiotic.

1/1

- 82 -

USSR

UDC 617-001.17-07:[612.118.24+616.5-002.157-003.2

KORYAKINA, I. K., ~~GORBUNTSOVA, R. V.~~, GERASIMOVA, L. I., and MURAZYAN, R. I.,
Pathophysiology Laboratory and Surgical Department, Central Institute of
Hematology and Blood Transfusion, Ministry of Health USSR, Moscow

"Comparison of the Toxicity of Blood Serum and Contents of Blisters in Burn
Victims"

Moscow, Problemy Gematologii i Perelivaniya Krovi, No 5, 1971, pp 44-46

Abstract: The toxicity of serum and exudate from blisters of persons suffering from burns covering 10 to 75% of the body surface was studied by the hemoculture method (leukocyte film). Activity was assessed from the extent of leukocyte migration after the cultures were incubated at 37°C for 18 hours. (Serum from healthy persons stimulates leukocyte migration). Fluid obtained from blisters within a few hours of the burn had a pronounced toxic effect on the hemocultures (-30, but serum from the same patients was much less toxic (-6) and in some cases had no effect at all. In one case (the burn affected 30% of the body surface), the blister fluid inhibited leukocyte migration (-33) while serum obtained at the same time slightly stimulated it (+4). Since the difference between the toxicity of serum and blister contents
1/2

USSR

KORYAKINA, I. K., et al., Problemy Gematologii i Perelivaniya Krovi, No 5, 1971, pp 44-46

diminished steadily with time, it is suggested that prompt removal of blisters is a worthwhile therapeutic procedure because it eliminates one of the sources of intoxication associated with burns.

2/2

- 47 -

USSR

UDC: 623.4.052.26

GORBUSHIN, I. A.

"A Dioptic Sight for Sporting Rifles"

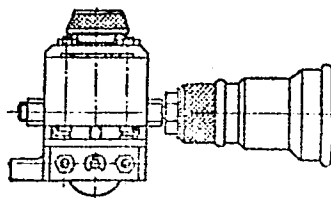
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 73, Author's Certificate No 369366, Division F, filed 26 Oct 70, published 8 Feb 73, p 107

Translation: This Author's Certificate introduces a dioptic sight for sporting rifles which includes a base, a pedestal, devices for making horizontal and vertical corrections, a slider with gunsight base, a gunsight, sight nut and lens hood. As a distinguishing feature of the patent, accuracy and reliability are improved by making the guides for motion of the pedestal and slider in the form of cylindrical rods which are continuously held by leaf springs against the wall of U-shaped grooves in the pedestal and slider. The ends of these rods are fixed in oval holes in the base and the pedestal.

1/2

USSR

GORBUSHIN, I. A., USSR Author's Certificate No 369366



2/2

- 116 -

USSR

UDC 621.373.531(088.8)

GORBUSHIN, N. G., Institute of Medical Radiology

"A Pulse Series Generator"

USSR Author's Certificate No 255348, Filed 7 May 68, Published 18 Mar 70 (from
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10G169 P)

Translation: The author proposes a pulse series generator based on a tunnel diode from which the output signal is taken and a transistor. The device contains an inductance connected between the cathode of the tunnel diode and the resistors of a voltage divider, one of these resistors being connected to a terminal of the power supply, while the other is connected to a common bus. To improve the economy and reliability of the generator the primary winding of a transformer is used as the inductance the secondary of this transformer being connected through a resistor to the base of the transistor, which is connected in a common-emitter circuit.

1/1

1

USSR

UDC 681.332.65

CHAVCHANIDZE, V. V., BRODZELI, M. I., KERTSMAN, E. L., GORBUSHINA, L. P.,
and MALKIN, Ya. P.

"Electrooptical Trigger with Calculating Input"

USSR Author's Certificate No 277844, filed 20 May 69, published 3 Nov 70
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6,
Jun 71, Abstract No 6 B210 P)

Translation: Electrooptical flip-flops based on optron-type polycrystals are well known. In particular, they can consist of a light radiator -- an electroluminescent capacitor -- and a photoreceiver -- a photoresistor. The basic principle on which polycrystalline electrooptical elements are built consists in realizing local optical coupling between the radiator and the photoresistor inside the optron and electrical coupling between the elementary cells. The proposed flip-flop is distinguished by the fact that in it two series-connected photoresistors are connected parallel to the electroluminescent cell connected in series to one of the photoresistors and coupled optically with it. One of the photoresistors is also optically connected to the electroluminescent cell, and the other, jointly with the first resistor, is connected to the input optical signal source. This permits an increase in operating stability of the system.

1/1

- 76 -

7

USSR

UDC 621.315.592

ALFEROV, ZH. I., ANDREYEV, V. M., BELOUSOVA, T. YA., BORODULIN, V. I., GORDYLEV, V. A., PAI, G. T., PETROV, A. I., PORTNOY, YE. L., CHELOUSOV, N. P., SHVEYKIN, V. I., YASHCHURIN, I. V.

"Effective Injection Heterolasers Operating in the Wavelength Band of 7,400-9,000 Å"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 568-569

Abstract: Results are presented from a study of the characteristics of effective heterolasers radiating in the wavelength band of 7,400-9,000 Å at room temperature. The $n\text{-Al}_{1-x}\text{Ga}_x\text{As-p-Al}_{1-y}\text{Ga}_y\text{As-p}^+\text{-Al}_x\text{Ga}_{1-x}\text{As}$ heterojunctions were obtained by epitaxial growth from GaAs-AlAs solutions. All the investigated diodes had a Fabry-Perot resonator. The threshold current density, the external differential quantum efficiency and the radiation power per pulse at 300°K are tabulated for various models of the lasers. Graphs are presented showing the mean values of the threshold current density and the external differential quantum efficiency as functions of the emission quantum energy and the temperature dependence of the external differential quantum efficiency. The threshold current density increased exponentially with an increase in temperature according to the law [V. I. Leschovich, et al., ETP, No 1, 1440, 1967]. Up to 1/2

USSR

ALFEROV, ZH. I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 568-569

a temperature of 250° K, the external differential quantum efficiency does not vary, in practice, but then it decreases with temperature. The data demonstrate the possibility of obtaining generation in the continuous mode at 300°K up to 7,700 Å.

2/2

USSR

UDC 621.378.35

GORSYLEV, V.A., PAK, G.T., PETROV, A.I., CHERNOUSOV, N.P., SHVEYKIN, V.I.,
YASHOMOV, I.V.

"Dependence Of Threshold Of Generation Of Injection Lasers On The Duration Of
The Pulses Of The Pumping Current"

Kvantovaya elektronika, Moscow, No 5, May 71, .pp 97-99

Abstract: The dependence is experimentally studied of the threshold of generation of injection lasers with diffused and heterogenous junctions in the system GaAs--AlAs on the duration of the pulses of the pumping current in the interval 2--100 nsec. The magnitudes are determined of the effective lifetime of the injected electrons for three types of laser diodes: with diffused p-n junction (~ 1 nsec), with one heterojunction (~ 2.5 nsec) and with two heterojunctions (3--6 nsec). The nanosecond pulses of the pumping current in the 2--100 nsec range with a building up front less than 1 nsec were shaped with the aid of a TG11-8/1 thyatron and dispersed delay lines. The pulse repetition frequency was regulated from 100 Hz to 10 kHz. Received by editors, 22 May 71; after revision, 6 May 71. 2 fig. 1 tab. 6 ref.

1/1

- 90 -

Semiconductors and Transistors

USSR

UDC 621.383.51:621.472

GORCHAK

NEGRESKUL, V.V., GORCHAK, L.V. [Letter unclear], KITOROAGA, A.D.

"Study Of Solar Photocells Based On Solid Solutions Of $\text{GaAs}_{1-x}\text{P}_x$ "

V sb. Slozhn. poluprovodniki i ikh fiz. svoystva (Complex Semiconductors And Their Physical Properties--Collection Of Works), Kishinev, "Shtiintsa," 1971, pp 52-58 (from RZh:Elektronika i yeye primeneniye, No 4, April 1972, Abstract No 4B312)

Translation: The paper presents the current-voltage characteristics, the dependence of the diffusion capacitance on the biasing voltage, the light and load characteristics and the spectral distribution of the photosensitivity of diffusion p-n junctions based on solid solutions of $\text{GaAs}_{1-x}\text{P}_x$. It is shown that the current-voltage characteristics can be described by the theories of Sa--Noys--Shockley. Photocells from solid solutions of $\text{GaAs}_{0.9}\text{P}_{0.05}$ have increased sensitivity in the short-wave part of the spectrum in comparison with Si and GaAs phototransducers. The efficiency of the photocells in question is 3--5 percent. 5 ill. 4 ref. Summary.

1/1

2

USSR

UDC: 621.315.582

CHEBAN, A. G., NEGRESKUL, V. V., OUSH, P. T., GORCHAK, L. V.,
UNGURYANU, G. I., and SMIRNOV, V. G.

"Solar Elements Using $p\text{-GaAs}_{1-x}\text{P}_x\text{-n-GaAs}$ Heterojunctions"

Tashkent, Geliotekhnika, No 1, 1972, pp 30-33

Abstract: The results of investigations made for determining the volt-ampere, load, and spectral characteristics of heterojunctions made by liquid epitaxial growth of solid solutions of $\text{GaAs}_{1-x}\text{P}_x$ on a GaAs substrate. The purpose of the research was to estimate the possibilities of using the $p\text{-GaAs}_{1-x}\text{P}_x\text{-n-GaAs}$ system as photoconverters. For the substrate, n-type GaAs with a μ of 2500-3500 $\text{cm}^2/\text{V}\cdot\text{sec}$ and an electron concentration of $7\cdot 10^{16}$ to $4\cdot 10^{17}$ per cc was used. The crystals of the material were oriented in the (111) plane and were covered by a solution of gallium containing dissolved GaP; the doping impurity was zinc, in a pure hydrogen atmosphere. Crystal growth was made in a temperature range of 760-910° C. Curves are plotted for the volt-ampere characteristic, the load characteristic, and the spectral distribution of the vapor collection coefficient for the heterojunctions. The basic advantage of the materials is that, in the form of solar elements, they can be used for operation at temperatures above 200° C, with an increase in the utilization percentage of the solar spectral energy.

Television

USSR

UDC 621.397

GORCHAKOV, E. M., SKVORTSOVA, A. P.

"Coding Television Images by Glass Fiber Optics"

V sb. Radioelektron. v nar. kh-ve SSSR (Radio Electronics in the Soviet National Economy--collection of works), Kuybyshev, 1971, pp 14-17 (from RZh-Radiotekhnika, No 12, Dec 71, Abstract No 12G294)

Translation: The authors consider the feasibility of coding secret documents by using irregularly cabled glass fibers. It is proposed that two cables with identically disordered fibers be made by disordered winding of the fibers on part of a cylindrical drum with regular winding on the remaining part of the drum. The resultant cable is cut into two sections, one being used on the transmitting end, and the other on the receiving end of the system. Use of this coding method is difficult because of the instability of the amplitude and position of the TV raster. M. N.

1/1

Acc. Nr:
AP0045062

Abstracting Service: **5/70**
INTERNAT. AEROSPACE ABST.

Ref. Code:
LR 0198

A70-23297 : Oscillations of a rectangular elastic body with a rigidly clamped base (Kolebaniia priamougol'nogo uprugogo tela s zhestko zakreplennym osnovaniem). V. N. Gorchakov and Iu. R. Shevchuk (Akademiia Nauk Ukrainskoi SSR, Institut Gidromekhaniki, Kiev, Ukrainian SSR). *Prikladnaia Mekhanika*, vol. 6, Jan. 1970, p. 115-119. 5 refs. In Russian.

Derivation of a difference scheme for approximately solving the problem of oscillations of a flat-rectangular elastic body with mixed boundary conditions. Constraints which are required to make this scheme stable are defined. The results are applied in computer calculations of steady oscillations of a rectangular dike under given compression loads.

V.Z.

ALS

REEL/FRAME
19771975

USSR

UDC 537.591.5

VERNOV, S. N., GORCHAKOV, YE. V., TIMOFEYEV, G. A.

"Propagation of Solar Protons in an Environment With a Constant and Variable Transport Mean Free Path During Instantaneous Injection Near the Sun"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 12, Dec 71, pp 2423-2427

Abstract: Previous articles by the authors, using the Monte Carlo method, considered cases of the propagation of protons during their injection near the sun in an environment with a constant mean free path $\Lambda = 0.1, 0.3, 1.0$ AU. Now there are results of calculations with more statistics and for a larger set of values for Λ . These calculations, for $\Lambda = 0.1, 0.3, 0.5, 0.75, 1.0$ AU, confirmed the conclusion that long flares observed with a large anisotropy cannot be explained by instantaneous injection near the sun and subsequent propagation in an environment with a constant mean free path. If the transport mean free path depends on the distance, then even during instantaneous

1/3

- 94 -

USSR .

VERNOV, S. N. et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 12, Dec 71, pp 2423-2427

injection the particles will be confined to the sun for a certain time. The attempt was made, by varying the value of β , to explain experimental data on low-energy proton flares. β values considered were 0.5, 1.0, 1.9. For all values the transport mean free path was taken to be equal to 1 AU at a heliocentric distance of 1 AU, permitting a large anisotropy. It was assumed that the regular magnetic field of the sun varies with distance as r^{-2} . The Monte Carlo method was used. The interaction of protons with inhomogeneities is described by giving the mean free path length and the mean inhomogeneity scattering angle.

The results indicate that with an increase in β there is an increase in the total duration of a flare and a delay in the onset of maximum intensity but, at the same time, a decrease in the anisotropy of the particle angle distribution. The most suitable

2/3

USSR

VERNOV, S. N. et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 12, Dec 71, pp 2423-2427

variant of solar proton propagation to explain experimental data on long flares with a large anisotropy and prolonged growth front is one with a variable mean free path at $\beta = 1.9$.

3/3

- 95 -

USSR

UDC 537.591.5

VERNOV, S. N., GORCHAKOV, YE. V., IGNAT'YEV, P. P., and GALACH'YEV, N. G.

"Variations in Fluxes of Charged Particles of Various Energies According to AIS Data"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 12, Dec 71, pp 2418-2422

Abstract: The article considers data on variations in the fluxes of charged particles of various energies, recorded on the Venus-2,3,4,6 and Zond-3 automatic interplanetary stations. The flight of Venus-2 and 3 and Zond-3 gave information for 1965; the Venus-4 flight, for 1967; and the Venus-6 flight, for 1969. Data on protons with $E = 1-5$ Mev and $E > 30$ Mev are mainly used. The data on low-energy protons were obtained by means of fine semiconductor detectors which recorded only protons and multiply charged particles but were insensitive to electrons. The protons with $E > 30$ Mev were measured by means of a gas-discharge counter. It is shown that for short (less than two days) and long (more than several days) variations there is an increase in low-energy proton flux during a decrease in the galactic cosmic-ray intensity. A

1/2

USSR

VERNOV, S. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 12, Dec 71, pp 2418-2422

more careful study of the relation between these phenomena requires that galactic cosmic rays be recorded by a detector with a high energy threshold value, which, for all practical purposes, would not record solar protons against a background of galactic cosmic rays.

2/2

- 96 -

1/3 027 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--ATMOSPHERIC EFFECT ON THE LONGITUDINAL DEPENDENCE OF ELECTRON
INTENSITY IN AN ANOMALY REGION -U-
AUTHOR--(02)-GORCHAKOV, YE.V., TIMOFEYEV, G.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCU, GEOMAGNETIZM I AERONOMIYA, VOL X, NO 3, 1970, PP 423-427

DATE PUBLISHED-----70

SUBJECT AREAS--MATHEMATICAL SCIENCES, EARTH SCIENCES AND OCEANOGRAPHY,
ATMOSPHERIC SCIENCES
TOPIC TAGS--DISTRIBUTION FUNCTION; ELECTRON, GEOMAGNETIC FIELD, KINETIC
EQUATION, ADIABATIC APPROXIMATION, ATMOSPHERE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3005/0530

STEP NO--UR/0203/70/010/003/0423/0427

CIRC ACCESSION NO--AP0132722

UNCLASSIFIED